

SEQUENCE LISTING

<110> DRAKE, Caroline Rachel
 PAINE, Jacqueline Ann Mary
 SHIPTON, Catherine Ann

 <120> Enhanced Accumulation of Carotenoids in Plants

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 <141> 2005-09-14

 <150> PCT/GB2004/001241
 <151> 2004-03-24

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 <170> PatentIn version 3.2

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| aaatggccag | acctagggcc | atgcaggccg | atccccgatc | gttcaaacat | ttggcaataa | 5400 |
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| tttatgatta | gagtcccga | attatacatt | taatacgcga | tagaaaacaa | aatatagcgc | 5580 |
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| tagcaactca | tgcatacatat | catgcctctc | tcaacctatt | cattcctact | catctacata | 360 |
| agtatcttca | gctaaatggt | agaacataaa | cccataagtc | acgtttgatg | agtattaggc | 420 |
| gtgacacatg | acaaatcaca | gactcaagca | agataaagca | aaatgatgtg | tacataaaac | 480 |
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| ggacattaac | aaactctatc | ttaacattta | gatgcaagag | cctttatctc | actataaatg | 780 |
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| aattcggctt | cccaaatacg | cgccaccatg | gcttctatga | tatcctcttc | cgctgtgaca | 900 |
| acagtcagcc | gtgcctctag | ggggcaatcc | gccgcagtgg | ctccattcgg | cggcctcaaa | 960 |
| tccatgactg | gattcccagt | gaagaaggtc | aacactgaca | ttacttccat | tacaagcaat | 1020 |
| ggtggaagag | taaagtgcac | gaaaccaact | acggtaattg | gtgcaggctt | cgggtggcctg | 1080 |
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| aaaccggcg | gtcgggctta | tgtctacgag | gatcaggggt | ttacctttga | tgcaggccccg | 1200 |
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| gaagccgtgc | atttagagga | cggtcgcagg | ttcctgacgc | aagccgtcgc | gtcaaatgca | 1860 |
| gatgtggttc | atacctatcg | cgacctgtta | agccagcacc | ctgccgcggt | taagcagtcc | 1920 |
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| aatgttagaa cataaaccca taagtcacgt ttgatgagta ttaggcgtga cacatgacaa | 3240 |
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| ccggtgggag | aagagacttg | aggatctgtt | cacgggacgt | ccttacgaca | tgcttgatgc | 4260 |
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| gcaaaagaaa | gagagaaaaga | acaacacaat | gctgcgtaa | ttatacatat | ctgtatgtcc | 660 |
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| cacgatgatt | tctcattggt | tctcacaaaa | agcattcagt | tcattagtcc | tacaacaacg | 840 |
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| tggatgcctt gctcgtcctt tggcctccac ccgtgggagg ctggccgtcc ctccccgcc | 180 |
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| cgctgcggcg | agatctgtga | ggagtatgcc | aagacgtttt | acctcggaac | tatgttgatg | 420 |
| acagaggagc | ggcgccgcgc | catatggggc | atctatgtgt | ggtgtaggag | gacagatgag | 480 |
| cttgtagatg | ggccaaacgc | caactacatt | acaccaacag | ctttggaccg | gtgggagaag | 540 |
| agacttgagg | atctgttcac | gggacgtcct | tacgacatgc | ttgatgccgc | tctctctgat | 600 |
| accatctcaa | ggttccccat | agacattcag | ccattcaggg | acatgattga | agggatgagg | 660 |
| agtgatctta | ggaagacaag | gtataacaac | ttcgacgagc | tctacatgta | ctgctactat | 720 |
| gttgctggaa | ctgtcgggtt | aatgagcgta | ccagtgatgg | gcatcgcatc | cgagtctaaa | 780 |
| gcaacaactg | aaagcgtgta | cagtgctgcc | ttggctctcg | gaattgcgaa | ccaactcacg | 840 |
| aacatactcc | gggatgttgg | agaggatgct | agacgaggaa | ggatatattt | accacaagat | 900 |
| gagcttgac | aggcagggct | ctctgatgag | gacatcttca | aaggggtcgt | cacgaaccgg | 960 |
| tggagaaact | tcatgaagag | gcagatcaag | agggccagga | tgttttttga | ggaggcagag | 1020 |
| agaggggtaa | ctgagctctc | acaggctagc | agatggccag | tatgggcttc | cctgttggtg | 1080 |
| tacaggcaga | tcctggatga | gatcgaagcc | aacgactaca | acaacttcac | gaagagggcg | 1140 |
| tatgttggtg | aaggggaagaa | gttgctagca | cttcctgtgg | catatggaaa | atcgctactg | 1200 |
| ctcccatggt | cattgagaaa | tggccagacc | tag | | | 1233 |

<210> 13

<211> 1263
 <212> DNA
 <213> Oryza sp.

<400> 13
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 cgggacgctg ctgccgtcca acatgtctgc tctctctacc tgcccaacaa caaggagaag 120
 aagaggaggt ggatcctctg ctcgctcaag tacgcctgcc ttggcgtcga ccctgccccg 180
 ggcgagattg cccggacctc gccggtgtac tccagcctca ccgtcacccc tgctggagag 240
 gccgtcatct cctcggagca gaaggtgtac gacgtcgtcc tcaagcaggc agcattgctc 300
 aaacgccacc tgcgcccaca accacacacc attcccatcg ttcccaagga cctggacctg 360
 ccaagaaacg gcctcaagca ggcctatcat cgctgcggag agatctgcga ggagtatgcc 420
 aagacctttt accttgaac tatgtctatg acggaggacc gacggcgcgc catatgggcc 480
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 cctttcaggg acatgataga agggatgcgg tcagacctca gaaagactag atacaagaac 720
 ttcgacgagc tctacatgta ctgctactat gttgctggaa ctgtggggct aatgagtgtt 780
 cctgtgatgg gtattgcacc cgagtcgaag gcaacaactg aaagtgtgta cagtgtgct 840
 ttggctctcg gcattgcaaa ccagctcaca aatatactcc gtgacgttgg agaggacgcg 900
 agaagagggg ggatatatct accacaagat gaacttcag aggcagggt ctctgatgag 960
 gacatcttca atggcgttgt gactaacaaa tggagaagct tcatgaagag acagatcaag 1020
 agagctagga tgttttttga ggaggcagag agaggggtga ccgagctcag ccaggcaagc 1080
 cggtgggccg tctgggctgc tctgttggtta taccggcaaa tccttgacga gatagaagca 1140
 aacgattaca acaacttcac aaagagggcg tacgttggga aggcgaagaa attgctagcg 1200
 cttccagttg catatggtag atcattgctg atgccctact cactgagaaa tagccagaag 1260
 tag 1263

<210> 14
 <211> 420
 <212> PRT
 <213> Oryza sp.

<400> 14
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 1 5 10 15

Asp Ala Leu Ala Arg Asp Ala Ala Ala Val Gln His Val Cys Ser Ser
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Tyr Leu Pro Asn Asn Lys Glu Lys Lys Arg Arg Trp Ile Leu Cys Ser
35 40 45

Leu Lys Tyr Ala Cys Leu Gly Val Asp Pro Ala Pro Gly Glu Ile Ala
50 55 60

Arg Thr Ser Pro Val Tyr Ser Ser Leu Thr Val Thr Pro Ala Gly Glu
65 70 75 80

Ala Val Ile Ser Ser Glu Gln Lys Val Tyr Asp Val Val Leu Lys Gln
85 90 95

Ala Ala Leu Leu Lys Arg His Leu Arg Pro Gln Pro His Thr Ile Pro
100 105 110

Ile Val Pro Lys Asp Leu Asp Leu Pro Arg Asn Gly Leu Lys Gln Ala
115 120 125

Tyr His Arg Cys Gly Glu Ile Cys Glu Glu Tyr Ala Lys Thr Phe Tyr
130 135 140

Leu Gly Thr Met Leu Met Thr Glu Asp Arg Arg Arg Ala Ile Trp Ala
145 150 155 160

Ile Tyr Val Trp Cys Arg Arg Thr Asp Glu Leu Val Asp Gly Pro Asn
165 170 175

Ala Ser His Ile Thr Pro Ser Ala Leu Asp Arg Trp Glu Lys Arg Leu
180 185 190

Asp Asp Leu Phe Thr Gly Arg Pro Tyr Asp Met Leu Asp Ala Ala Leu
195 200 205

Ser Asp Thr Ile Ser Lys Phe Pro Ile Asp Ile Gln Pro Phe Arg Asp
210 215 220

Met Ile Glu Gly Met Arg Ser Asp Leu Arg Lys Thr Arg Tyr Lys Asn
225 230 235 240

Phe Asp Glu Leu Tyr Met Tyr Cys Tyr Tyr Val Ala Gly Thr Val Gly
245 250 255

Leu Met Ser Val Pro Val Met Gly Ile Ala Pro Glu Ser Lys Ala Thr
 260 265 270

Thr Glu Ser Val Tyr Ser Ala Ala Leu Ala Leu Gly Ile Ala Asn Gln
 275 280 285

Leu Thr Asn Ile Leu Arg Asp Val Gly Glu Asp Ala Arg Arg Gly Arg
 290 295 300

Ile Tyr Leu Pro Gln Asp Glu Leu Ala Glu Ala Gly Leu Ser Asp Glu
 305 310 315 320

Asp Ile Phe Asn Gly Val Val Thr Asn Lys Trp Arg Ser Phe Met Lys
 325 330 335

Arg Gln Ile Lys Arg Ala Arg Met Phe Phe Glu Glu Ala Glu Arg Gly
 340 345 350

Val Thr Glu Leu Ser Gln Ala Ser Arg Trp Pro Val Trp Ala Ser Leu
 355 360 365

Leu Leu Tyr Arg Gln Ile Leu Asp Glu Ile Glu Ala Asn Asp Tyr Asn
 370 375 380

Asn Phe Thr Lys Arg Ala Tyr Val Gly Lys Ala Lys Lys Leu Leu Ala
 385 390 395 400

Leu Pro Val Ala Tyr Gly Arg Ser Leu Leu Met Pro Tyr Ser Leu Arg
 405 410 415

Asn Ser Gln Lys
 420

<210> 15
 <211> 1260
 <212> DNA
 <213> Capsicum annuum

<400> 15
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 ttggtatccg ttcgtgaggg aaaccggatt tttgattcgt cggggcgtag gaatttggcg 120
 tgcaatgaga gaatcaagag aggaggtgga aaacaaaggt ggagttttgg ttcttacttg 180
 ggaggagcac aaactggaag tggacggaaa ttttctgtac gttctgctat cgtggctact 240
 ccggctggag aaatgacgat gtcacagaa cggatggtat atgatgtggt tttgaggcag 300

| | |
|---|------|
| gcagccttgg tgaagagaca gctgagatcg accgatgagt tagatgtgaa gaaggatata | 360 |
| cctattccgg ggactttggg cttgttgagt gaagcatatg ataggtgtag tgaagtatgt | 420 |
| gcagagtacg caaagacggt ttacttagga acgatgctaa tgactccgga gagaagaaag | 480 |
| gctatctggg caatatacgt atgggtgcagg agaacagacg aacttggtga tgggtccgaat | 540 |
| gcatcacaca ttactccggc ggccttagat aggtgggaag acaggctaga agatgttttc | 600 |
| agtggacggc catttgacat gctcgatgct gctttgtccg acacagtttc caaatttcca | 660 |
| gttgatattc agccattcag agatatgatt gaaggaatgc gtatggactt gaggaagtca | 720 |
| agatacagaa actttgacga actataccta tattgttatt acgttgctgg tacggttggg | 780 |
| ttgatgagtg ttccaattat gggcatcgca cctgaatcaa aggcaacaac ggagagcgta | 840 |
| tataatgctg ctttggcttt ggggatcgca aatcagctga ccaacatact tagagatgtt | 900 |
| ggagaagatg ccagaagagg aagagtctat ttgcctcaag atgaattagc acaggcaggt | 960 |
| ctatccgacg aagacatatt tgctggaaga gtgaccgata aatggagaat cttcatgaag | 1020 |
| aaacaaattc agagggcaag aaagttcttt gacgaggcag agaaaggagt gaccgaattg | 1080 |
| agcgcagcta gtagatggcc tgtgttggca tctctgctgt tgtaccgcag gatactggac | 1140 |
| gagatcgaag ccaatgacta caacaacttc acaaagagag cttatgtgag caaaccaaag | 1200 |
| aagttgattg cattacctat tgcatatgca aaatctcttg tgccttctac aagaacatga | 1260 |

<210> 16

<211> 1239

<212> DNA

<213> *Lycopersicon esculentum*

<400> 16

| | |
|--|-----|
| atgtctgttg ccttgttatg gggtgtttct ccttgtagacg tctcaaattg gacaagtttc | 60 |
| atggaatcag tccgggaggg aaaccgtttt tttgattcat cgaggcatag gaatttggtg | 120 |
| tccaatgaga gaatcaatag aggtggtgga aagcaaacta ataatggacg gaaattttct | 180 |
| gtacggtctg ctattttggc tactccatct ggagaacgga cgatgacatc ggaacagatg | 240 |
| gtctatgatg tggttttgag gcaggcagcc ttggtgaaga ggcaactgag atctaccaat | 300 |
| gagttagaag tgaagccgga tatacctatt ccggggaatt tgggcttgtt gagtgaagca | 360 |
| tatgataggt gtggtgaagt atgtgcagag tatgcaaaga cgtttaactt aggaactatg | 420 |
| ctaatgactc ccgagagaag aagggtatc tgggcaatat atgtatggtg cagaagaaca | 480 |
| gatgaacttg ttgatggccc aaacgcacat tatattaccc cggcagcctt agataggtgg | 540 |
| gaaaataggc tagaagatgt tttcaatggg cggccatttg acatgctcga tggtgctttg | 600 |

| | | | | | | |
|------------|-------------|------------|------------|------------|------------|------|
| tccgatacag | tttctaactt | tccagttgat | attcagccat | tcagagatat | gattgaagga | 660 |
| atgcgtatgg | acttgagaaa | atcgagatac | aaaaacttcg | acgaactata | cctttattgt | 720 |
| tattatgttg | ctggtacggg | tgggttgatg | agtgttccaa | ttatgggtat | cgcccctgaa | 780 |
| tcaaaggcaa | caacagagag | cgtatataat | gctgcttttg | ctctggggat | cgcaaatcaa | 840 |
| ttaactaaca | tactcagaga | tgttgagaaa | gatgccagaa | gaggaagagt | ctacttgcct | 900 |
| caagatgaat | tagcacaggc | aggtctatcc | gatgaagata | tatttgctgg | aagggtgacc | 960 |
| gataaatgga | gaatctttat | gaagaaacaa | atacataggg | caagaaagt | ctttgatgag | 1020 |
| gcagagaaag | gcgtgacaga | attgagctca | gctagtagat | tccctgtatg | ggcatctttg | 1080 |
| gtcttgtagc | gcaaaatact | agatgagatt | gaagccaatg | actacaacaa | cttcacaaag | 1140 |
| agagcatatg | tgagcaaatac | aaagaagttg | attgcattac | ctattgcata | tgcaaaatct | 1200 |
| cttgtgcctc | ctacaaaaac | tgctctctct | caaagataa | | | 1239 |

<210> 17
 <211> 891
 <212> DNA
 <213> Erwinia sp.

| | |
|-------------|---|
| <400> 17 | |
| atggcagttg | gctcgaaaag ttttgcgaca gcctcaaagt tatttgatgc aaaaacccgg 60 |
| cgcagcgtac | tgatgctcta cgctgggtgc cgccattgtg acgatgttat tgacgatcag 120 |
| acgctgggct | ttcaggcccg gcagcctgcc ttacaaacgc ccgaacaacg tctgatgcaa 180 |
| cttgagatga | aaacgcgcca ggcctatgca ggatcgcaga tgcacgaacc ggcgtttgcg 240 |
| gcttttcagg | aagtggctat ggctcatgat atcgccccgg cttacgcgtt tgatcatctg 300 |
| gaaggcttcg | cgatggatgt acgcgaagcg caatacagcc aactggatga tacgctgcgc 360 |
| tattgctatc | acgttgacagg cgttgtcggc ttgatgatgg cgcaaatcat gggcgtgcgg 420 |
| gataacgcca | cgctggaccg cgctgtgac cttgggctgg catttcagtt gaccaatatt 480 |
| gctcgcgata | ttgtggacga tgcgcatgcg ggccgctgtt atctgccggc aagctggctg 540 |
| gagcatgaag | gtctgaacaa agagaattat gcggcacctg aaaaccgtca ggcgctgagc 600 |
| cgtatcgccc | gacgttttgt gcaggaagca gaaccttact atttgtctgc cacagccggc 660 |
| ctggcagggg | tgccccctgcg ttccgcctgg gcaatcgcta cggcgaagca ggtttaccgg 720 |
| aaaataggtg | tcaaagttga acaggccggg cagcaagcct gggatcagcg gcagtcaacg 780 |
| accacgcccc | aaaaattaac gctgctgctg gccgcctctg gtcaggccct tacttccccg 840 |
| atgcggggctc | atcctccccg cctgcgcat ctctggcagc gcccgctcta g 891 |

<210> 18
 <211> 1479
 <212> DNA
 <213> *Erwinia* sp.

<400> 18
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 caagctgcgg ggatccccgt cttactgctt gaacaacgtg ataaaccggc cggtcgggct 120
 tatgtctacg aggatcaggg gtttaccttt gatgcaggcc cgacggttat caccgatccc 180
 agtgccattg aagaactggt tgcactggca ggaaaacagt taaaagagta tgtcgaactg 240
 ctgccgggta cgccgtttta ccgcctgtgt tgggagtcag ggaaggtctt taattacgat 300
 aacgatcaaa cccggctcga agcgcagatt cagcagttta atccccgca tgtcgaaggt 360
 tatcgtcagt ttctggacta ttcacgcgcg gtgtttaaag aaggctatct gaagctcggc 420
 actgtccctt ttttatcggt cagagacatg cttcgcgccg cacctcaact ggcgaaactg 480
 caggcatgga gaagcgttta cagtaagggt gccagttaca tcgaagatga acatctgcgc 540
 caggcgTTTT ctttccactc gctgttggtg ggcggaatc ctttcgccac ctcatccatt 600
 tatacgTTga tacacgcgct ggagcgtgag tggggcgctc ggtttcgcgc tggcggcacc 660
 ggcgcattag ttcaggggat gataaagctg tttcaggatc tgggtggcga agtcgtgtta 720
 aacgccagag tcagccatat ggaaacgaca ggaaacaaga ttgaagccgt gcatttagag 780
 gacggtcgca ggttcctgac gcaagccgtc gcgtcaaagc cagatgtggt tcatacctat 840
 cgcgacctgt taagccagca ccctgccgcg gttaagcagt ccaacaaact gcagactaag 900
 cgcagagta actctctggt tgtgctctat tttggtttga atcaccatca tgatcagctc 960
 gcgcatcaca cggttttgtt cggcccgctg taccgcgagc tgattgacga aatttttaat 1020
 catgatggcc tcgcagagga cttctcactt tatctgcacg cgccctgtgt cacggattcg 1080
 tcaactggcg ctgaagggtg cggcagttac tatgtgttgg cgccggtgcc gcatttaggc 1140
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 cttgagcagc attacatgcc tggcttacgg agtcagctgg tcacgcaccg gatgtttacg 1260
 ccgtttgatt ttcgcgacca gcttaatgcc tatcatggct cagccttttc tgtggagccc 1320
 gttcttacct agagcgctg gtttcggccg cataaccgcg ataaaaccat tactaatctc 1380
 tacctggctg gcgcaggcac gcatccccgc gcaggcattc ctggcgctcat cggctcggca 1440
 aaagcgacag caggtttgat gctggaggat ctgatttga 1479

<210> 19
 <211> 1488
 <212> DNA

<213> Erwinia sp.

<400> 19

| | |
|---|------|
| atggcgggccg ccaaaccaac tacggtaatt ggtgcaggct tcggtggcct ggcactggca | 60 |
| attcgtctac aagctgcggg gatccccgtc ttactgcttg aacaacgtga taaaccggc | 120 |
| ggtcgggctt atgtctacga ggatcagggg tttaccttg atgcaggccc gacggttatc | 180 |
| accgatccca gtgccattga agaactgttt gcaactggcag gaaaacagtt aaaagagtat | 240 |
| gtcgaactgc tgccgggttac gccgttttac cgctgtgtt gggagtcagg gaaggtcttt | 300 |
| aattacgata acgatcaaac ccggctcgaa gcgcagattc agcagtttaa tccccgcgat | 360 |
| gtcgaagggtt atcgtcagtt tctggactat tcacgcgcgg tgtttaaaga aggctatctg | 420 |
| aagctcggta ctgtcccttt tttatcggtc agagacatgc ttcgcgccgc acctcaactg | 480 |
| gcgaaaactgc aggcattggag aagcgtttac agtaagggtg ccagttacat cgaagatgaa | 540 |
| catctgcgcc aggcgttttc tttccactcg ctgttggtgg gcggcaatcc cttcgccacc | 600 |
| tcattccattt atacgttgat acacgcgctg gagcgtgagt ggggcgtctg gtttccgcgt | 660 |
| ggcggcaccg gcgcattagt tcaggggatg ataaagctgt ttcaggatct ggggtggcgaa | 720 |
| gtcgtgttaa acgccagagt cagccatatg gaaacgacag gaaacaagat tgaagccgtg | 780 |
| catttagagg acggtcgcag gttcctgacg caagccgtcg cgtcaaagtc agatgtgggt | 840 |
| catacctatc gcgacctgtt aagccagcac cctgccgcgg ttaagcagtc caacaaactg | 900 |
| cagactaagc gcatgagtaa ctctctgttt gtgctctatt ttggtttgaa tcaccatcat | 960 |
| gatcagctcg cgcattcacac ggtttggttc ggcccgcgtt accgcgagct gattgacgaa | 1020 |
| atttttaatc atgatggcct cgcagaggac ttctcacttt atctgcacgc gccctgtgtc | 1080 |
| acggattcgt cactggcgcc tgaagggtgc ggcagttact atgtgttggc gccggtgccg | 1140 |
| catttaggca ccgcgaacct cgactggacg gttgaggggc caaaactacg cgaccgtatt | 1200 |
| tttgcgtagc ttgagcagca ttacatgcct ggcttacgga gtcagctggg cagcaccgg | 1260 |
| atgtttacgc cgtttgattt tcgcgaccag cttaatgcct atcatggctc agccttttct | 1320 |
| gtggagcccc ttcttaccga gagcgcttg tttcgccgcg ataaccgcga taaaaccatt | 1380 |
| actaatctct acctggtcgg cgcaggcacg catcccggcg caggcattcc tggcgatcat | 1440 |
| ggctcggcaa aagcgacagc aggtttgatg ctggaggatc tgatttga | 1488 |

<210> 20

<211> 839

<212> DNA

<213> Oryza sp.

<400> 20

| | |
|--|-----|
| gttaatcatg gtgtaggcaa cccaaataaa acacccaaaat atgcacaagg cagtttggtg | 60 |
| tattctgtag tacagacaaa actaaaagta atgaaagaag atgtggtggt agaaaaggaa | 120 |
| acaatatcat gagtaatgtg tgagcattat gggaccacga aataaaaaga acattttgat | 180 |
| gagtcgtgta tcctcgatga gcctcaaaaag ttctctcacc ccggataaga aacccttaag | 240 |
| caatgtgcaa agtttgcatt ctccactgac ataatgcaaa ataagatatc atcgatgaca | 300 |
| tagcaactca tgcacatcat catgcctctc tcaacctatt cattcctact catctacata | 360 |
| agtatcttca gctaaatggt agaacataaa cccataagtc acgtttgatg agtattaggc | 420 |
| gtgacacatg acaaatcaca gactcaagca agataaagca aaatgatgtg tacataaaac | 480 |
| tccagagcta tatgtcatat tgcaaaaaaga ggagagctta taagacaagg catgactcac | 540 |
| aaaaattcat ttgcctttcg tgtcaaaaag aggagggtt tacattatcc atgtcatatt | 600 |
| gcaaaagaaa gagagaaaaga acaacacaat gctgcgtcaa ttatacatat ctgtatgtcc | 660 |
| atcattattc atccaccttt cgtgtaccac acttcatata tcatgagtca cttcatgtct | 720 |
| ggacattaac aaactctatc ttaacattta gatgcaagag cctttatctc actataaatg | 780 |
| cacgatgatt tctcattggt tctcacaaaa agcattcagt tcattagtcc tacaacaac | 839 |

<210> 21
 <211> 642
 <212> DNA
 <213> Oryza sp.

| | |
|--|-----|
| <400> 21 | |
| aagcttgccg gcggaatacg gtggagatgg gttgggaacc ctggattcca aacacagccc | 60 |
| aagtctatcc aaaatgttta gacaagaaaa tacgtaacaa gttggtttac agaaatacga | 120 |
| attagatcaa tcctgcacta caagtagagt aaagtgggtga tttctcttaa atctctcgaa | 180 |
| tggtgattta agaattcagt gcaaaccaaa tccttgctat aatcaaagt tccgtaccgc | 240 |
| atcaacggaa caataaaaag cgcctggcgt accataattt tgtcattctt gttgaaattt | 300 |
| gtaattttaag atgcatgagg ccacacgacc ttaatgttca acgtgtcatg cattagtga | 360 |
| ataatagctc acaaaacgca acaaatatag ctagataacg gttgcaatcc ttaccaaact | 420 |
| aacgtataaa gtgagcgatg agtcatatca ttatctcccg cctgctaacc atcgtgtaca | 480 |
| ccatccgatc acaaaaatga caacttctag ggatgaacct ggacaagggt taggggttag | 540 |
| ggatgaatct ggacaaatga ttgttcaggt tcatccctag atgttggttt ctcctgacgg | 600 |
| gacggaggga gtatatgtga tggacacaaa agttactttc at | 642 |

<210> 22
 <211> 190

<212> DNA
 <213> Artificial Sequence

<220>
 <223> Intron

<400> 22
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 tttgagcttt gatctttctt taaactgac tattttttta ttgattgggt atcgtgtaaa 120
 tattacatag ctttaactga taatctgatt actttatttc gtgtgtcttt gatcatcttg 180
 atagttacag 190

<210> 23
 <211> 171
 <212> DNA
 <213> Pisum sativum

<400> 23
 atggcttcta tgatattctc ttccgctgtg acaacagtca gccgtgcctc tagggggcaa 60
 tccgccgcag tggctccatt cggcggcctc aaatccatga ctggattccc agtgaagaag 120
 gtcaacactg acattacttc cattacaagc aatggtggaa gagtaaagtg c 171

<210> 24
 <211> 254
 <212> DNA
 <213> Agrobacterium tumefaciens

<400> 24
 gatcgttcaa acatttggca ataaagtctc ttaagattga atcctgttgc cggctcttgcg 60
 atgattatca tataatttct gttgaattac gtttaagcatg taataattaa catgtaatgc 120
 atgacgttat ttatgagatg ggtttttatg attagagtcc cgcaattata catttaatac 180
 gcgatagaaa acaaaaatata gcgcgcaaac taggataaat tatcgcgcgc ggtgtcatct 240
 atgttactag atcg 254

<210> 25
 <211> 193
 <212> DNA
 <213> Cauliflower mosaic virus

<400> 25
 gctgaaatca ccagtctctc tctacaaatc tatctctctc tataataatg tgtgagtagt 60
 tcccagataa gggaattagg gttcttatag ggtttcgctc atgtgttgag catataagaa 120
 acccttagta tgtatttgta tttgtaaaat acttctatca ataaaatttc taattcctaa 180
 aaccaaaaatc cag 193

<210> 26
 <211> 238
 <212> DNA
 <213> Solanum tuberosum

<400> 26
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 ttactaatta tctgaataag agaaagagat catccatatt tcttatccta aatgaatgtc 180
 acgtgtcttt ataattcttt gatgaaccag atgcatttta ttaaccaatt ccatatac 238

<210> 27
 <211> 2321
 <212> DNA
 <213> Lycopersicon esculentum

<400> 27
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 ttagtttggt tattttataca gaattatacg cttttactag ttatagcatt cggtatcttt 180
 ttctgggtaa ctgccaaacc accacaaatt tcaagtttcc atttaactct tcaacttcaa 240
 cccaaccaa tttatttgct taattgtgca gaaccactcc ctatatcttc taggtgcttt 300
 cattcgttcc gagtaaaatg cctcaaattg gacttgtttc tgctgttaac ttgagagtcc 360
 aaggtagttc agcttatctt tggagctcga ggtcgtcttc tttgggaact gaaagtcgag 420
 atggttgctt gcaaaggaat tcgttatggt ttgctggtag cgaatcaatg ggtcataagt 480
 taaagattcg tactcccat gccacgacca gaagattggt taaggacttg gggcctttaa 540
 aggtcgtatg cattgattat ccaagaccag agctggacaa tacagttaac tatttgaggg 600
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 ttattgctgg tgcaggtttg ggtggtttgt ctacagcaaa atatttggca gatgctggtc 720
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 ttgaagctca agatgggata agtggttaagg actggatgag aaagcaaggt gtgccggaca 1140

| | | | | | | |
|------------|-------------|-------------|------------|------------|-------------|------|
| gggtgacaga | tgaggtgttc | attgctatgt | caaaggcact | caactttata | aaccctgacg | 1200 |
| aactttcaat | gcagtgcatt | ttgatcgcat | tgaacagggt | tcttcaggag | aaacatgggt | 1260 |
| caaaaatggc | cttttttagat | ggtaatcctc | ctgagagact | ttgcatgccg | attggtgaac | 1320 |
| acattgagtc | aaaagggtggc | caagtcagac | tgaactcacg | aataaaaaag | attgagctga | 1380 |
| atgaggatgg | aagtgtcaag | agttttatac | tgagtgcagg | tagtgcaatc | gagggagatg | 1440 |
| cttttgtgtt | tgccgctcca | gtggatatatt | tcaagcttct | attgcctgaa | gactggaaag | 1500 |
| agattccata | tttccaaaag | ttggagaagt | tagtcggagt | acctgtgata | aatgtacata | 1560 |
| tatggtttga | cagaaaactg | aagaacacat | atgatcattt | gctcttcagc | agaagctcac | 1620 |
| tgctcagtgt | gtatgctgac | atgtctgtta | catgtaagga | atattacaac | cccaatcagt | 1680 |
| ctatgttggg | attggttttt | gcacctgcag | aagagtggat | atctcgcagc | gactcagaaa | 1740 |
| ttattgatgc | aacgatgaag | gaactagcaa | cgctttttcc | tgatgaaatt | tcagcagatc | 1800 |
| aaagcaaagc | aaaaatattg | aagtaccatg | ttgtcaaaac | tccgaggtct | gtttataaaa | 1860 |
| ctgtgccagg | ttgtgaaccc | tgctggcctt | tacaaagatc | cccaatagag | gggtttttatt | 1920 |
| tagccggtga | ctacacgaaa | cagaaatact | tggcttcaat | ggaaggcgct | gtcttatcag | 1980 |
| gaaagctttg | tgctcaagct | attgtacagg | attatgagtt | acttgttggg | cgtagccaaa | 2040 |
| agaagttgtc | ggaagcaagc | gtagtttagc | tttgtgggta | ttatttagct | tctgtacact | 2100 |
| aaatttatga | tgcaagaagc | gttgtacaca | acatatagaa | gaagagtgcg | aggtgaagca | 2160 |
| agtaggagaa | atgttaggaa | agctcctata | caaaaggatg | gcatgttgaa | gattagcatc | 2220 |
| tttttaatcc | caagttaa | tataaagcat | attttatgta | ccactttctt | tatctggggg | 2280 |
| ttgtaatccc | tttatatctt | tatgcaatct | ttacgttagt | t | | 2321 |

<210> 28
 <211> 1749
 <212> DNA
 <213> Capsicum annuum

| | | | | | | |
|------------|------------|------------|------------|-------------|------------|-----|
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| ctttggagct | cgaggctctc | tttgggaact | gatagtcaag | atgggttgctc | gcaaaggaat | 120 |
| tcgttatgtt | ttggtggtag | tgactcaatg | agtcataggt | taaagattcg | taatccccat | 180 |
| tccataacga | gaagattggc | taaggatttc | cggcctttaa | aggttgtttg | cattgattat | 240 |
| ccaaggccag | agctagacaa | tacagttaac | tatttgaggg | ctgcattctt | atcatcatca | 300 |
| ttccgatctt | ctccgcgcc | aaccaaacca | ctggagattg | ttattgctgg | tgagggtttg | 360 |
| ggtggtttgt | ctacagcaaa | atatttggca | gatgctggtc | acaaaccaat | actgctggag | 420 |

| | |
|--|------|
| gcaaggggatg ttctaggtgg aaaggtagct gcatggaaag atgatgatgg agattggtat | 480 |
| gagactgggtt tgcacatatt ctttggggct tacccaaata tgcagaacct atttgagaa | 540 |
| ttagggataa atgatcgatt gcaatggaag gaacattcga tgatatttgc aatgccaaac | 600 |
| aagccaggag aattcagccg ctttgatttc cccgaagctt tacctgctcc tttaaattgga | 660 |
| attttggcaa tcctaaagaa caatgaaatg cttacatggc cagaaaaagt caaatttgca | 720 |
| attggactct tgccagcaat gcttgggtgg caatcttatg ttgaagctca agacgggata | 780 |
| agtgttaagg actggatgag aaaacaaggt gtgccggata gggtgacgga tgaggtgttc | 840 |
| atcgccatgt caaaggcact taacttcata aatcctgatg agctttcgat gcagtgcac | 900 |
| ttgatcgcgt tgaacagatt tcttcaggag aaacatgggt caaaaatggc ctttttagat | 960 |
| ggtaatcctc ctgagagact ttgcatgccg attgttgaac atatcgagtc aaaaggtgga | 1020 |
| caagtcagac tgaactcacg aataaaaaag attgagctga atgaggatgg aagtgtcaag | 1080 |
| tgttttatac tgaacgatgg tagtacaatt gagggagatg cttttgtgtt tgcgactcca | 1140 |
| gtggatattt tcaagcttct tttgcctgaa gactggaaag agattccata tttccaaaag | 1200 |
| ttggagaagt tagttggagt acctgtgata aatgtccata tatggtttga cagaaaactg | 1260 |
| aagaacacat ctgataattt gctcttcagc agaagccac tgctcagtgt gtatgctgac | 1320 |
| atgtccgtca catgtaagga atattacgac cccaacaagt ccatgttga attggtcttt | 1380 |
| gcgcctgcag aagagtgggt atctcgcagt gactctgaaa ttattgatgc tacaatgaag | 1440 |
| gaactagcaa agctatttcc tgatgaaatt tcggcggatc agagcaaagc aaaaatattg | 1500 |
| aagtatcatg ttgtcaaaac tccaaggtct gtatataaaa ctgtgccagg ttgtgaaccc | 1560 |
| tgtcggctct tgcaaagatc ccctgtagag gggttttatt tagctggtga ctacacgaaa | 1620 |
| cagaaatact tggcttcaat ggaaggtgct gtcttatcag gaaagctttg tgcacaagct | 1680 |
| attgtacagg attacgagtt acttgttggc cggagccaga ggaagttggc agaaacaagt | 1740 |
| gtagtttag | 1749 |

<210> 29
 <211> 2264
 <212> DNA
 <213> Zea mays

| | |
|---|-----|
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| cacacccaat tcctcgcaac tgggctcccc cgctccacg aactgcccc ccgtctcaag | 120 |
| tccgcgcct ccattcttca gctctcctat cctccgccta gaatatcttc atcggtattt | 180 |

| | |
|--|------|
| taccaacctg gatcaattta ctcacgatac tctgaagcgt atacatatgc catatgggaa | 240 |
| atgacttcat agctgtgggt tgtcttatgg ctccctgaat ttgcagtagt ctgcctgtac | 300 |
| ctattggctg aagcagagct gacccccact ttatcaagag ttgctcaacg atggacactg | 360 |
| gctgcctgtc atctatgaat attactggag ctagccagac aagatctttt gcggggcaac | 420 |
| ttcctcctca gagatgtttt gcgagtagtc actatacaag ctttgccgtg aaaaaacttg | 480 |
| tctcaaggaa taaaggaagg agatcacacc gtagacatcc tgccttgacg gttgtctgca | 540 |
| aggattttcc aagacctcca ctagaaagca caataaacta tttggaagct ggacagctct | 600 |
| cttcattttt tagaaacagc gaacgcccc aagagccgtt gcaggtcgtg gttgctggtg | 660 |
| caggattggc tgggtctatca acagcgaagt atctggcaga tgctggccat aaaccatat | 720 |
| tgcttgaggc aagagatgtt ttgggtggaa aggtagctgc ttggaaggat gaagatggag | 780 |
| attggtacga gactgggctt catatatatt ttggagctta tcccaacata cagaatctgt | 840 |
| ttggcgagct taggattgag gatcgtttgc agtggaagaa acactctatg atattcgcca | 900 |
| tgccaaacaa gccaggagaa ttcagccggt tcgatttccc agaaactttg ccagcaccta | 960 |
| taaatgggat atggggcata ttgagaaaca atgaaatgct tacttggccg gagaaggtga | 1020 |
| agtttgcaat cggacttctg ccagcaatgg ttgggtgtca accttatgtt gaagctcaag | 1080 |
| atggcttaac cgtttcagaa tggatgaaaa agcagggtgt tcctgatcgg gtgaacgatg | 1140 |
| aggtttttat tgcaatgtcc aaggcactca atttcataaa tcctgatgag ctatctatgc | 1200 |
| agtgcatttt gattgctttg aaccgatttc ttcaggagaa gcatgggttct aaaatggcat | 1260 |
| tcttgatggg taatccgcct gaaaggctat gcatgcctat tggtgatcac attcgggtcta | 1320 |
| ggggtggaga ggtccgcctg aattctcgtg ttaaaaagat agagctgaat cctgatggaa | 1380 |
| ctgtaaaaca cttcgcactt agtgatggaa ctcaaataac tggagatgct tatgtttgtg | 1440 |
| caacaccagt cgatatcttc aagcttcttg tacctcaaga gtggagtga attacttatt | 1500 |
| tcaagaaact ggagaagtgt gtgggagttc ctgttatcaa tgttcatata tggtttgaca | 1560 |
| gaaaactgaa caacacatat gaccaccttc ttttcagcag gagttcactt ttaagtgtct | 1620 |
| atgcagacat gtcagtaacc tgcaaggaat actatgaccc aaaccgttca atgctggagt | 1680 |
| tggtctttgc tcctgcagac gaatggattg gtcgaagtga cactgaaatc atcgatgcaa | 1740 |
| ctatggaaga gctagccaag ttatttcctg atgaaattgc tgctgatcag agtaaagcaa | 1800 |
| agattcttaa gtatcatatt gtgaagacac cgagatcggg ttacaaaact gtcccaaact | 1860 |
| gtgagccttg ccggcctctc caaaggcac ctatcgaagg tttctatcta gctggtgatt | 1920 |
| acacaaagca gaaatacctg gcttctatgg aagggtgcagt cctatccggg aagctttgtg | 1980 |

| | |
|--|------|
| cccagtccat agtgcaggat tatagcaggc tcgcactcag gagccagaaa agcctacaat | 2040 |
| caggagaagt tcccgtccca tcttagttgt agttggcttt agctatcgtc atccccactg | 2100 |
| ggtgctatct tatctcctat ttcaatggga acccacccaa tggtcattgtt ggagacaaca | 2160 |
| cctgttatgg tcctttgacc atctcgtggg gactgtagtt gatgtcatat tcggatatat | 2220 |
| atgtaaaagg acctgcatag caattgttag accttgga aa | 2264 |

<210> 30
 <211> 2027
 <212> DNA
 <213> *Oryza* sp.

| | |
|--|------|
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| aagtagcagc atccaagcac tgaaaggtag tcagcatgtg agctttggag tgaaatctct | 120 |
| tgtcttaagg aataaaggaa aaagattccg tcggaggctc ggtgctctac aggttgtttg | 180 |
| ccaggacttt ccaagacct cactagaaaa cacaataaac tttttggaag ctggacaact | 240 |
| atcctcattt ttcagaaaca gtgaacaacc cactaaacca ttacaggctg tgattgctgg | 300 |
| agcaggatta gctggtttat caacggcaaa atatctggca gatgctggc ataaacccat | 360 |
| attgcttgag gcaagggatg ttttgggtgg aaagatagct gcttggaagg atgaagatgg | 420 |
| agattggtat gaaactgggc ttcatatctt ttttggagct tatcccaaca tacagaactt | 480 |
| gtttggcgag cttggtatta atgatcggtt gcaatggaag gaacactcca tgatatttgc | 540 |
| catgccaaac aagccaggag aatccagccg gtttgatttt cctgaaacat tgcctgcacc | 600 |
| cttaaattgga atatgggcca tactaagaaa caatgaaatg ctaacttggc cagagaaggt | 660 |
| gaagtttgct cttggacttt tgccagcaat ggttggtggc caagcttatg ttgaagctca | 720 |
| agatgggtttt actgtttctg agtggatgaa aaagcagggt gttcctgatc gagtgaacga | 780 |
| tgaagttttc attgcaatgt caaaggcact taatttcata aatcctgatg agttatccat | 840 |
| gcagtgcatt ctgattgctt taaaccgatt tcttcaggag aagcatgggt ctaagatggc | 900 |
| attccttgat ggtaatcctc ctgaaagggt atgcatgcct attgttgacc atgttcgctc | 960 |
| tttgggtggt gaggttcggc tgaattctcg tattcagaaa atagaactta atcctgatgg | 1020 |
| aacagtgaaa cactttgcac ttaccgatgg aactcaaata actggagatg cttatgtttt | 1080 |
| tgcaacacca gttgatattt tgaagcttct tgtacctcaa gagggaag aaatatctta | 1140 |
| tttcaagaag ctggagaagt tgggtggagt tcctgttata aatgttcata tatggtttga | 1200 |
| tagaaaactg aagaacacat atgaccacct tcttttcagc aggagttcac ttttaagtgt | 1260 |
| ttatgcggac atgtcagtaa cttgcaagga atactatgat ccaagccgtt caatgctgga | 1320 |

| | | | | | | |
|------------|------------|------------|------------|------------|------------|------|
| gttggctctt | gctcctgcag | aggaatgggt | tggacggagt | gacactgaaa | tcatcgaagc | 1380 |
| aactatgcaa | gagctagcca | agctatttcc | tgatgaaatt | gctgctgata | agagtaaagc | 1440 |
| aaagattctg | aagtatcatg | ttgtgaagac | accaagatct | gtttacaaga | ctatcccgga | 1500 |
| ctgtgaacct | tgccgacctc | tgcaaagatc | accgattgaa | gggttctatc | tagctgggtg | 1560 |
| ctacacaaa | gagaaatatt | tggcttcgat | ggagggtgca | gttctatctg | ggaagctttg | 1620 |
| tgctcagtct | gtagtggagg | attataaaat | gctatctcgt | aggagcctga | aaagtctgca | 1680 |
| gtccgaagtt | cctgttgcct | cctagttgta | gtcaggacta | ttcccaatgg | tgtgtgtgtc | 1740 |
| atcatcccct | agtcagtttt | tttctattta | gtgggtgccc | aactctccac | caatttacac | 1800 |
| atgatggaac | ttgaaagatg | cctatttttg | tcttatcata | tttctgtaaa | gttgatttgt | 1860 |
| gactgagagc | tgatgccgat | atgccacgct | ggagaaaaag | aacattatgt | aaaacgacct | 1920 |
| gcatagtaat | tcttagactt | ttgcaaaagg | caaaaggggt | aaagcgacct | tttttttcta | 1980 |
| tgtgaaggga | ttaagagacc | ttaaaaaaaa | aaaaaaaaaa | aaaaaaa | | 2027 |

<210> 31

<211> 1931

<212> DNA

<213> *Lycopersicon esculentum*

<400> 31

| | | | | | | |
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| tttttttcct | accctcataa | ttgggtagag | aacaattccc | atggctactt | cttcagctta | 120 |
| tctttcttgt | cctgcaactt | ctgctactgg | aaagaaacat | gttttcccaa | atgggtcacc | 180 |
| tggattcttg | gtttttgggt | gtaccggtt | gtccaaccgg | ttagtgacct | gaaagtcggg | 240 |
| tattcgggct | gatttggatt | ctatggtttc | tgatatgagt | accaacgctc | caaaagggct | 300 |
| atttccaccc | gagcctgaac | attatcgggg | gccaaagctg | aaagtagcta | ttattggagc | 360 |
| tgggcttgca | ggcatgtcga | ctgctgtgga | gctcttggat | caaggacatg | aggtggatat | 420 |
| atacgaatca | aggactttta | ttgggtggga | agtgggttct | tttggtgata | gacgtgggaa | 480 |
| ccacattgaa | atgggactgc | acgtgttctt | tgggtgttat | aataatctgt | tccgtctgtt | 540 |
| gaaaaagggt | ggtgctgaaa | aaaatctgct | agtgaaggag | catactcaca | catttgtaaa | 600 |
| taaagggggg | gaaatagggg | aacttgattt | ccgctttcca | gttgaggcac | ccttacatgg | 660 |
| aattaatgca | tttctgtcta | ctaatacagt | aaagatttat | gataaagcta | gaaatgctgt | 720 |
| agctcttgcc | cttagtccag | tgggtcgggc | tttagttgat | ccggatgggt | cattgcagca | 780 |
| gatacgcgat | ctagataatg | taagcttttc | tgagtgggtt | ctgtctaaag | gtgggacgcg | 840 |

| | | | | | | |
|-------------|------------|------------|-------------|------------|------------|------|
| tgctagcatc | cagaggatgt | gggatcctgt | tgcatatgct | cttgattca | ttgactgtga | 900 |
| taacatgagt | gctcgggtga | tgctcactat | atttgcatta | tttgccacaa | aaacagaggc | 960 |
| ttccctatta | cgcatgctta | aaggttctcc | tgacgtttat | ttgagtggtc | caattaagaa | 1020 |
| gtacatcatg | gacaaagggg | gcagggtcca | tctgagggtg | ggatgcagag | aggactctca | 1080 |
| tgagacgtcc | tctgatggaa | gcatgtatgt | tagtgggctt | gccatgtcaa | aggccactca | 1140 |
| gaagaaaatt | gtaaaagctg | atgcatatgt | ggctgcatgt | gatgtccctg | gaattaaaag | 1200 |
| attggttcct | cagaagtggg | gggaattgga | attctttgac | aacatttaca | aattggtcgg | 1260 |
| agtgcctgtt | gttaccgtac | aactacgcta | caatggctgg | gttacagagt | tgaggactt | 1320 |
| ggagcgttcg | aggcaattga | agcgcgctgc | aggattggac | aatctcctct | atacgccaga | 1380 |
| tgagattttc | tcttgctttg | cagatcttgc | attggcatct | ccagatgatt | actacattga | 1440 |
| gggacaaggc | tcattgcttc | aatgtgtcct | tacacctggg | gacccttaca | tgctctatc | 1500 |
| aaatgatgaa | atcattaaaa | gagttacaaa | gcaggttttg | gcattatttc | cttcgtccca | 1560 |
| aggctcttgag | gttacctggg | catcagtttt | gaagatagga | caatctttat | atcgtgaagg | 1620 |
| acctggtaaa | gacccattca | gacctgatca | gaagacgcca | gtggaaaatt | tctttcttgc | 1680 |
| tggtcatat | acaaaacagg | actacatcga | tagcatggaa | ggagcaactc | tttcaggtag | 1740 |
| gcaagcttct | gcatacatat | gtaatgttgg | agagcagctg | atggcgttgc | gtaaaaagat | 1800 |
| cactgctgct | gagttgaatg | acatctctaa | agggtgtgtcc | ctatctgatg | agttgagtct | 1860 |
| tgtctgatga | cagactgcaa | atcatccaaa | tacaactcag | ttaggcatcg | cacaaggaag | 1920 |
| aattcttcta | a | | | | | 1931 |

<210> 32
 <211> 1982
 <212> DNA
 <213> Capsicum annuum

| | |
|-------------|-----|
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| ctttgttgtc | |
| ctgccacttc | |
| tgcttcttta | |
| aagaaacgtg | 120 |
| tttttccaga | |
| tggtccgct | |
| ggattcttgt | |
| tttttgggtg | |
| tcgtcgtttg | |
| tcgaaccggg | 180 |
| tagtgacccc | |
| aaagtctgtc | |
| atccgagctg | |
| atttgaactc | |
| catggctctc | |
| gacatgagta | 240 |
| ccaacgctcc | |
| aaaagggcta | |
| tttccacctg | |
| aacctgaaca | |
| ttatcggggg | |
| ccaaagctga | 300 |
| aagtagctat | |
| tattggagct | |
| ggccttgtag | |
| gcatgtcgac | |
| tgctgtggag | |
| ctcttggtatc | 360 |
| aaggacatga | |
| ggtggatata | |
| tatgaatcaa | |
| ggaccttcac | |
| tggtgggaaa | |
| gtgggttctt | 420 |
| ttgttgataa | |
| acgtgggaac | |
| cacattgaaa | |
| tggaactgca | |
| cgtgttcttt | |
| ggttgctata | 480 |
| ataatctatt | |
| ccgtctgatg | |
| aaaaaggtgg | |
| gtgctgaaaa | |
| aaatctgcta | |

| | |
|--------------------------------------|------|
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| aat aaagggggtg aaatagggga gcttgatttc | |
| cgctttccag ttggagcgcc cttacatgga | 600 |
| attaatgcat ttttgtctac taatcaacta | |
| aagacttatg ataaagctag aaatgctgta | 660 |
| gctcttggccc ttagtccagt ggtgcgggct | |
| ttagttgatc cagatggcgc attgcagcag | 720 |
| atacgtgatc tagatagtgt aagcttttct | |
| gattggttta tgtctaaagg agggacgcgc | 780 |
| gctagcatcc agaggatgtg ggatcctggt | |
| gcatatgctc ttggattcat tgactgtgac | 840 |
| aatatcagtg ctcggtgtat gctcactata | |
| tttgcattat ttgccactaa aacggaggct | 900 |
| tcctactgc gcatgcttaa aggttctcct | |
| gacgtttatt tgagtgggtcc aattaagaag | 960 |
| tacatcatag acaagggggg aaggttccat | |
| ctgaggtggg gatgcagaga ggtactctac | 1020 |
| gagacatcct ctgatggaag catgtatggt | |
| agcgggcttg ccatgtcaaa ggccactcag | 1080 |
| aagaaaattg taaaagctga tgcctatggt | |
| gccgcatgtg tagtacctgg aattaaaga | 1140 |
| ttagtacctc agaagtggag ggaattggaa | |
| ttctttggca acatttacia actgattgga | 1200 |
| gtgcctgttg ttactgtgca actacgatac | |
| aatggctggg ttacggagtt gcaggacttg | 1260 |
| gagcgttcaa ggcaatcaaa gcgcgctaca | |
| ggtttggaaca atctcctgta cacgccagat | 1320 |
| gcagatttct cttgttttgc agaccttgca | |
| ttggcatctc cagaagatta ttacattgag | 1380 |
| ggacaaggct cgttgcttca atgtgtcctt | |
| acgcctggcg acccttacat gcctctacca | 1440 |
| aatgaagaaa tcataagaag agtgtcaaag | |
| cagggttttg cgttatttcc ttcttcccaa | 1500 |
| ggtcttgagg taacctgggtc atcagttgtg | |
| aagattgggc aatccttata tcgtgaagga | 1560 |
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| aagacgccag tggaaaattt ctttcttgct | 1620 |
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| agtatggaag gggcaactct ttcaggcaga | 1680 |
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| gagcagctgt tggcgtgctg aaaaaagatt | 1740 |
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| ggtgtatcgc tatcggatga gttgagtctt | 1800 |
| gtctgatgac tgcaaatcat tcagaaatat | |
| aattcagtta ggcagtgcac aaggaagaat | 1860 |
| tcttctaaat ttttgagtct cacaattatg | |
| gaaatcaaaa tatgttttaa aaatgttgta | 1920 |
| tgtatgtaat attagtaaatt cttcatagt | |
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| ggccgtcgct gctcgctcga ccgtaacgtc tccgacatgg cgtcaacgct cccaaagggt | 360 |
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| aggccttgcg ggcatgtcca ccgctgttga gctcttggac caggggccatg aggttgattt | 480 |
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| gaagaagggt ggcgctgata ataatctgct ggtgaaggaa cataccata cttttgtaaa | 660 |
| taaagggggc acgattggtg aacttgattt tcggttcccg gtgggagctc cgttacatgg | 720 |
| cattcaagca ttcctaagaa ctaatcagct caaggtttat gataaagcaa gaaatgcagt | 780 |
| tgctcttgcc cttagtccag ttgttcgggc tctggttgat cctgatgggt cattgcagca | 840 |
| agtgcgggac ttggatgata taagtttcag tgattgggtc atgtccaaag ggggtactcg | 900 |
| ggagagtatc acaagaatgt gggatcctgt tcgttacgct ttgggtttca ttgactgtga | 960 |
| taatatacgt gcacgttgca tgcttactat tttcaccttg tttgccacaa agacagaggc | 1020 |
| atccctgtta cgcatgttaa aggggttcacc tgatgtttac ttaagtgggt caataaagaa | 1080 |
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| tggatcttac acgaaacagg actacatcga cagcatggaa ggagcaactc tctccggcag | 1800 |

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| gcgaacgtcg | gcctacatct | gcggtgccgg | ggaggagctg | ctggccctcc | gaaagaagct | 1860 |
| actcatcgac | gacggcgaga | aggcgctggg | gaacgttcaa | gtcctgcagg | ctagctgaac | 1920 |
| aacccctcct | gactgcaga | gaagcttggg | tctttccaac | cacacataca | tgctggaatg | 1980 |
| gacaaaccaa | ccaaccattg | tcttttctcg | cttcaggggtg | ctggcgattc | ccgcagcaac | 2040 |
| ctcctgtgta | tcgtatccaa | tttgagcatt | agatctgccc | ccccccctg | caggcgtttc | 2100 |
| tttcctatcc | ctgatccgag | aagcaggggtg | tagtctaggt | ggctggcata | cgggattaca | 2160 |
| tcaggcagtg | tgtaagttca | gctggaactc | gattggtaat | tgggatggat | gattgatgat | 2220 |
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| ggccctcaca | caaattgccc |
| ctcttcttct | cctcctcttt |
| 120 | |
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| gccgccaacc | acccgcccc |
| cccgccacc | gctgccgagt |
| 180 | |
| gctagccatt | tggagctgcc |
| gcgccatggc | gtccgtggcc |
| gccaccacca | cgctggcacc |
| 240 | |
| ggcactcgcc | ccgcgccggg |
| cgcgggcagg | gactgggctc |
| gtgccgccgc | gccgggcctc |
| 300 | |
| ggccgctcgt | gctcgtcga |
| ccgtaacgtc | tccgacatgg |
| cgtaacgct | cccaaagggt |
| 360 | |
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| actacagggg | cccgaagctc |
| aaggtggcca | tcataggggc |
| 420 | |
| aggccttgcg | ggcatgtcca |
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| 480 | |
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| tcggtggcaa | ggttggctcc |
| tttgttgaca | ggcaaggaaa |
| 540 | |
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| atgtgttctt | cggtgtgtac |
| agcaatctct | tccgcctcat |
| 600 | |
| gaagaagggt | ggcgctgata |
| ataatctgct | ggtgaaggaa |
| catacccata | cttttgtaaa |
| 660 | |
| taaagggggc | acgattgggtg |
| aacttgattt | tcggttcccg |
| gtgggagctc | cgttacatgg |
| 720 | |
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| ctaatacagct | caaggtttat |
| gataaagcaa | gaaatgcagt |
| 780 | |
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| ttgttcgggc | tctggttgat |
| cctgatgggtg | cattgcagca |
| 840 | |
| cccacgcgtc | cgccacgcg |
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| 900 | |
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| cattcctacg | aactaacc |
| ctcaagggtt | atgataaagc |
| 960 | |
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| ctctaagccc | agttgttcga |
| gctcttggtg | atccagatgg |
| 1020 | |
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| atgttgatga | tgtaagtttc |
| agcgattggg | tcttgctgaa |
| 1080 | |
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| gttgccctatg | ctcttggttt |
| 1140 | |

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| cccgtcatca caaggcttgg aacttacatg gtcgagtgtg gtgaaaatcg gtcaatcatt | 1860 |
| gtaccgcgag tcaccaggaa atgatccatt tagacctgat caaaagacac cagttaaaaa | 1920 |
| cttcttcctg tctggctctt acacaaaaca ggactacatt gacagcatgg aaggggcaac | 1980 |
| tctctcaggc aggagaaccg cggcctacat ctgtggtgca ggagaggagc tgcttcgccc | 2040 |
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| gcatacggga ttacatcagg cagcgtgtgt tttgttcagc ttaaccgatc attgaaccca | 2400 |
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26

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